IDEM AND PUBLIC HEALTH SUBCOMMITTEE OF THE ENVIRONMENTAL QUALITY SERVICE COUNCIL

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MEETING MINUTES[1]

Meeting Date: October 13, 1999
Meeting Time: 1:30 P.M.
Meeting Place: State House, 200 W. Washington St., Room 233
Meeting City: Indianapolis, Indiana
Meeting Number: 2

Members Present: Sen. Vi Simpson, Chairperson; Sen. Beverly Gard; Michael Carnahan; Kerry Michael Manders; Alice Schloss; Julie Newland; Doug Pond; Tom Neltner; Jim Mahern; Helene Uhlman; Alan Moberly.

Members Absent: Rep. Dale Sturtz; Rep.David Wolkins; John Blair.

The Chairperson, Senator Simpson, called the meeting to order at approximately 1:35 p.m. She announced that the Subcommittee was privileged to have guest speakers from the U.S. Environmental Protection Agency (EPA) Region 5 Office in Chicago to discuss the subject raised in 1999 House Concurrent Resolution 14: the potential relationship between air and soil quality and the incidence of certain diseases in urban areas.

The first of the guests from the EPA to address the Subcommittee was **Sally Swanson**, the Northwest Indiana Team Manager of EPA Region 5. Ms. Swanson delivered brief remarks on the subject of urban pollution and public health and then introduced her EPA colleagues Amy Mucha, Mark Johnson, and Maryann Suero. She also introduced Clayton Koher, Regional Representative of the federal Agency for Toxic Substances and Disease Registry's Region 5 Office in Chicago.

Mark Johnson, Ph.D., who identified himself as a toxicologist in the EPA's Superfund Program, made a presentation to the Subcommittee entitled "Introduction of Basic Concepts of Assessing Environmental Health Impacts." His presentation touched on the following points:

[1] Exhibits and other materials referenced in these minutes can be inspected and copied in the Legislative Information Center in Room 230 of the State House in Indianapolis, Indiana. Requests for copies may be mailed to the Legislative Information Center, Legislative Services Agency, 200 West Washington Street, Indianapolis, IN 46204-2789. A fee of $0.15 per page and mailing costs will be charged for copies. These minutes are also available on the Internet at the General Assembly homepage. The URL address of the General Assembly homepage is http://www.ai.org/legislative/. No fee is charged for viewing, downloading, or printing minutes from the Internet.

- How environmental impacts on health are evaluated through epidemiology.

- The definition of epidemiology: the study of factors that determine the occurrence and distribution of disease in a population.

- The different types of health studies, each of which, according to Dr. Johnson, has its applications:
  - Case control studies: Knowing the disease, look back to the exposure.
  - Cross sectional studies: A screening tool used to evaluate the disease and the exposure at the same time.
  - Cohort studies: Study exposure and then look forward to the disease; used to study rare effects; quite expensive.

- The questions that can be answered by environmental health studies:
  - Are there geographical differences in the incidence of disease?
  - Are there geographical differences in the exposure to environmental pollutants?
  - Is there an association between exposure to environmental pollutants and risk of disease?

- The types of causal relationships:
  - Sufficient cause: If the cause is present, disease will always occur.
  - Necessary cause: If the cause is not present, disease will not occur.
  - Risk factor: increases the probability of disease, e.g., smoking and lung cancer.

- The question that is <u>not</u> answered by environmental health studies: Are exposures to environmental pollutants the cause of a chronic disease in a specific individual or population?

- The types of associations between exposure to pollutants and risk of disease:
  - Direct association: no intermediary factors are required.
  - Indirect association: the effects are mediated through intermediary factors.
  - Non-causal association: no link between the exposure and risk of disease.

These concepts, Dr. Johnson said, are what toxicologists use in making environmental assessments.

Next to address the Subcommittee was **Amy Mucha, M.S.**, an environmental scientist and risk assessor for the EPA, who made a presentation entitled "Estimating and Defining Exposure to Environmental Contamination." Ms. Mucha made the following points:

- Exposure to contamination is hard to establish because, for example, people move from city to city.

- Exposure is not just one question you ask. You must add other pieces of the puzzle to estimate the exposure. For example: How many children live in the area? Is the sample data really representative? You must understand the population as well as what the population is exposed to.

- Concerning environmental data needs:
  - Data must be collected consistently over a significant period of time.
  - Data must be collected from a wide range of geographical areas, and the scale used in collecting the data must be appropriate to the situation.
  - The identification of sources for specific pollutants is important; there is lots of good air pollution data, but soil pollution data is not as widely available.

- When you have collected data, you must ask about the quality of the data and also ask what it represents.

- Estimating health effects involves defining the population to be assessed; determining the disease or

groups of diseases to be investigated; and understanding the nature of the disease process.

- Having collected and evaluated data, you can then ask whether the data indicates a relationship between exposure to contaminants and disease. To determine the existence of a relationship, you must ask whether the information is representative of what you are seeking: Were the data collected consistently over time? Is there a consistency between the exposure and the health data? Does the exposure precede the apparent effect on health?

Senator Simpson asked whether information accumulated through the issuance of permits could be compared to disease statistics. Ms. Mucha answered positively, but said that end-of-smokestack information does not necessarily tell you about exposure.

The Subcommittee next heard from **Maryann Suero, Ph.D.** of the EPA's Region 5 Office, who discussed the "Chicago Cumulative Risk Initiative," (CCRI) a study being conducted by the EPA's Region 5 Office in partnership with the city of Chicago, Cook County, Illinois, the state health and environmental agencies of Illinois and Indiana, and several community groups in Cook County and Lake County, Indiana.

Dr. Suero made the following points about CCRI:

- CCRI was initiated in response to petitions that were presented to the EPA by eleven community advocacy groups in 1996.

- The purposes of CCRI are:
  - to better characterize urban residents' cumulative exposures to multiple regulated pollutants and the cumulative risk to human health associated with those multiple exposures;
  - to effectively target resources to reduce the risk to human health associated with the cumulative environmental exposures; and
  - to encourage relationships between environmental and health agencies and community-based organizations.

- In its first phase, CCRI created an "environmental loading profile," which summarized all available emissions and environmental data for the two counties. The corresponding data base that was developed allows the user to query emissions information on the basis of such things as Zip code, pollutant, and source category.

- CCRI will also develop a "cumulative risk methodology," which will use information gathered in the loading profile to quantify how exposure to a whole range of pollutants typically found in urban industrial settings affects children's health. Looking only at air emissions sources, but using data from several different environmental databases, CCRI will identify geographical areas within Cook County and Lake County that are characterized by a relatively high degree of hazard to health, and will identify population segments within the two counties that are relatively susceptible to respiratory diseases, elevated blood lead concentrations, and childhood leukemias.

Dr. Suero indicated that CCRI was applying weighting factors to data from environmental databases in order to distinguish more toxic pollutants from less toxic pollutants. Tom Neltner, expressing the opinion that any weighting factors are subjective, asked what the data are being weighted for. Dr. Suero replied that the data are being weighted for the most serious effect on health.

In response to another question, Dr. Suero said that the U.S. EPA is paying for CCRI, and that the total project cost is $1.5 million. However, she said, CCRI is establishing a methodology that should be usable by other researchers in other areas. Everyone is used to looking at the health effects of one source or one chemical at a time, she said, and CCRI is an attempt to break new ground by "looking at the big picture."

Senator Simpson asked Dr. Suero what would be done with all the information that CCRI will produce. Dr. Suero replied that it will be used for such things as deciding how and where to do monitoring; assisting in voluntary emissions reduction efforts; and, in enforcement actions, targeting those sources having the most damaging effect on human health.

Senator Gard expressed uneasiness with the prospect of data of the sort compiled by CCRI being used in enforcement. Dr. Suero responded that the data would be updated and would not be used blindly. It would, she said, just help the EPA to focus what it was doing in enforcement.

Senator Simpson posed this question: How else besides through enforcement do you reduce environmental risk to health? Dr. Suero answered that enforcement is just one tool. Many emissions sources that are thought to be driving health problems are in compliance with emissions limitations, she said, so to reduce the health risks from their emissions you have to go to something like voluntary reductions.

In reply to a question from Kerry Manders about the breadth of community involvement in CCRI, Dr. Suero named many community organizations that are represented on the CCRI advisory group, and also Northwestern University Hospital and Childrens Memorial Hospital.

Tom Neltner asked why CCRI did not begin by asking what diseases are the most troublesome in the Chicago area and working backwards from that point to trace the causes of those diseases. He commented that environmentalists too often fail to give due consideration to public health. Dr. Suero replied that CCRI represents one instance in which the EPA is starting to think like a public health agency.

After Dr. Suero's presentation, **Clayton Koher**, Regional Representative of the federal Agency for Toxic Substances and Disease Registry (ATSDR), briefly addressed the Subcommittee. He explained that ATSDR, in response to a petition from Congressman Pete Visclosky, is currently studying the incidence of cancer in the Hammond area and a potential link between the cancer rate and emissions from a particular chemical company. He mentioned that the ATSDR is evaluating information from the cancer registry and is working with Subcommittee member Helene Uhlmann of the Hammond Health Department and other local officials in this study.

Senator Simpson thanked Ms. Swanson, Dr. Johnson, Ms. Mucha, Dr. Suero, and Mr. Koher for their appearances before the Subcommittee and for the information they provided. (A copy of a printed outline of the presentations of Dr. Johnson, Ms. Mucha, Dr. Suero is available from the Legislative Information Center as "Attachment A" to these minutes.)

The Subcommittee was then provided additional information on a subject first discussed at the Subcommittee's meeting on August 5: the geographic information database of the Indiana State Department of Health (ISDOH) and a potential expansion of the purposes for which it is used. **Edward N. Lutz, M.A.**, the Geographic Information System Coordinator of the ISDOH, addressed the Subcommittee on this subject. (A copy of a printed outline of Mr. Lutz's presentation is available from the Legislative Information Center as "Attachment B" to these minutes.) Mr. Lutz made the following points:

- The Geographic Information System (GIS) of the ISDOH presents data within a geographical framework. Because many different health information databases were developed over time for different purposes, they lack a unifying framework. The ISDOH's GIS allows information from these databases to be melded together and presented in a single conceptual framework.

- The ISDOH uses GIS as an integrating tool, an illustrating tool, and an analysis tool. GIS incorporates infrastructure data (such as the location of railroads, hospitals, school districts, etc.), demographic data (such as census data and updates, zip codes, etc.), and programmatic data (such as information from birth and death records, cancer registry data, etc.).

- The uses of GIS in the environmental health area include the Childhood Lead Poisoning Prevention Program, the issuance of lake and stream fish advisories, and the identification of cancer clusters.

- GIS is a "tool kit" and has its limitations:
  - **S** It does not automatically prove causation. GIS can identify the area in which cancers have occurred, but it is then up to the epidemiologists to decide whether there is a relationship between the cancers and pollution in the area.
  - **S** GIS is subject to limitations relating to the data in the system.
  - **S** GIS can be difficult to master.

- The GIS is being used to determine the areas of Indiana in which infant mortality, elevated blood lead, low birth weight, cancer, and tuberculosis are most prevalent.

Mr. Lutz, using a projector and transparencies, then showed the Subcommittee some of the maps produced by GIS. They included maps representing elevated blood lead levels; population density and the location of hospitals; low birth weight; and the location of social service agencies in Tipton County. He stated that GIS is capable of depicting 21 demographic variables from the 1990 census for every block group in Indiana.

In reply to a question from Senator Simpson, Mr. Lutz said that the hospital data included in GIS relates to the type of hospital, the number of beds in the hospital, etc., but not admissions to the hospital.

Subcommittee member Alan Moberly of the Marion County Health Department made this comment: Some counties have more data than others. In particular, Marion County has a much denser data set for lead poisoning than other counties. Consequently, if the available lead poisoning data is plotted on a map, the map makes it look as though Marion County has a much greater problem than other counties with less effective data collection.

Senator Simpson asked whether GIS is able to incorporate data from the Indiana Department of Environmental Management (IDEM) and other agencies. Joe Hunt, the Director of Information Technology of ISDOH, replied that Mr. Lutz has worked with IDEM and the Department of Natural Resources (DNR) on the incorporation of IDEM and DNR data into ISDOH's GIS, and that "the technology is there."

Kerry Manders asked whether GIS provides information on the location of failed septic systems. Mr. Lutz replied that GIS has some information from the census on the location of septic systems.

Doug Pond expressed concern about the potential over-reliance on population density in interpreting public health data, saying that in an extreme case 75% of the people in a very small town could be ill and the problem might escape notice because the number of ill people would be relatively small.

Senator Simpson thanked Mr. Lutz for his for his presentation and invited those attending the meeting to ask questions of the day's speakers.

Senator Simpson asked the EPA representatives this question: What sorts of data would they recommend that a state collect if the state were just beginning to collect public health data? Amy Mucha responded that the state should collect information on asthma rates, cancer, and lead levels in blood. Mark Johnson added that the state should collect information on birth defects, and should obtain information on rural as well as urban populations because you need to compare urban data to rural data.

Helene Uhlmann commented that public health data reporting requirements should be tightened because hospitals and physicians are not reporting as they should. Mike Carnahan questioned the accuracy of information as to cause of death that is reported on death certificates. Alan Moberly commented that there is a growing problem arising from Indiana hospitals' use of laboratories that are located outside Indiana and that are consequently not subject to the same legal reporting requirements as labs located in Indiana.

Maryann Suero questioned whether hospital admission data is a useful indication of the magnitude of the asthma problem. Perhaps, she said, a better indication would be the number of days lost from school or the number of prescriptions. Helene Uhlmann said that Hammond's school system, for the safety of the children, keeps a registry of students with asthma problems. Senator Simpson responded that this would be impossible for a small school corporation that has only one nurse, who must travel from school to school. Kerry Manders recommended focusing on the schools to make changes having a positive impact on health statistics. School nurses, he said, could be on the front line to diagnose disease, keep good records, and do good reporting.

Dr. Gregory Steel, the epidemiologist for Marion County, made these comments: There are many health information databases in existence already. Some areas report data well, and others do not. Only three individuals work to receive the data for the whole state. Data mechanisms exist, but the resources have not been allocated to make them effective tools.

Glenn Pratt distributed copies of a draft paper which, he said, presents some ideas that he and Dr. Bill Beranek of the Indiana Environmental Institute had discussed. The paper, which was entitled "How EQSC Could Advise the State to Improve its Ability to Detect, Analyze, and Address Significant Disease Clusters," (a copy of which is available from the Legislative Information Center as "Attachment C" to these minutes) presented the following recommendations:

1. Expand the Indiana Cancer Registry. Rebuild the Cancer Registry by funding it with state funds in the amount of $2 million per year for three years and then maintain it with funding of $1 million per year.

2. Expand the Indiana Birth Record Malformation Report. Require the reporting of malformations identified at ages up to four years old.

3. Create a statutory standing commission to coordinate interagency strategies for addressing disease clusters.

4. Create a State GIS Coordinating Committee to better coordinate the many state data databases that could be compared on single GIS displays.

Senator Simpson announced that the Subcommittee, at its next meeting on Thursday, November 4, would formulate its recommendations to be submitted to its parent body, the Environmental Quality Service Council.

At approximately 3:30 p.m., Senator Simpson declared the meeting adjourned.